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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/859,648	05/16/2001	Laurence M. Hubby JR.	10001006-1	3883

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EXAMINER	
YENKE, BRIAN P	

ART UNIT	PAPER NUMBER
2614	5

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/859,648	HUBBY, LAURENCE M.	
	Examiner	Art Unit	
	BRIAN P. YENKE	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment (09 March 2004)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-17* is/are allowed.

6)☒ Claim(s) *18-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 27 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The negative limitation in claim 27 states "the ordering of the different colors does not change during operation of the reflective micro-mirror light valve", the examiner was unable to find this limitation/statement in the applicant's disclosure as originally filed.

2. Applicant's arguments filed 09 March 2004 have been fully considered but they are not persuasive. The examiner has provided a second Non-Final Rejection based upon the applicant's request.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 18 is rejected under 35 U.S.C. 102(e) as being anticipated by Ishikawa et al., US 6,457,833.

In considering claim 18,

a) the claimed a plurality of full-color screen pixels... is met by reflective micro-mirror (Fig 1,2) (DMD 1 Fig 1), where the pixels are arranged end to end forming parallel stripes as shown in Fig 1. Regarding the limitation of "parallel stripes corresponding to the size and configuration of a color stripe illumination pattern". Ishikawa does not include that above mentioned limitation/terminology in the disclosure. However, the use of the DMD with the parallel stripes as shown in Fig 1 corresponds to an illumination pattern, since the DMD modulates the light for display, where the size/configuration of the pattern for display is based upon image data, is used by a DMD to illuminate the respective pixel/subpixels. Thus the parallel stripes of the DMD correspond to a display/illuminated pattern. Regarding the size and configuration, since the DMD illuminates the pattern, the pattern corresponds to the stripes of the DMD, thus the size and configuration of the stripes relates to the pattern.

b) the claimed each of said pixels including three sub pixels is met where the reflective micro-mirror reflects the red, blue and green colors for each pixel (Fig 2).

c) the claimed sub-pixels including a reflective surface having an actuated state and unactuated state is met where based upon the state (On or Off) determines the angle of reflection, when the reflection is On the reflection is perpendicular to surface and when the reflection is Off the angle is diverted away from the surface as shown (Fig 2).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 19-29 rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa et al., US 6,457,833 in view of Bernstein et al., US 5,903.383.

In considering claims 19-20, Ishikawa does not explicitly recite the address circuitry including a light valve controller connected to the DMD, connected to the columns and rows of the sub-pixels.

Ishikawa does disclose a system which utilizes a single micromirror device which is able to display a color image where the DMD displays/reflects the color of the

respective sub-pixel based upon the video data in order to display the corresponding image.

The examiner incorporates Bernstein et al., US 5,903,383 which discloses a electrostatic memory micromirror display system which displays the respective data (sub-pixels) based on the video data which is connected to the respective columns and rows of the micromirror display (Fig 11).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify/utilize in Ishikawa which discloses a single micromirror device to display a color image with Bernstein by controlling/addressing the columns and rows of the micro-mirror in order to display/reflect the appropriate pixel/sub-pixel in order to replicate the incoming video data for display.

In considering claim 21,

The claimed wherein the one and the another directions are the only directions in which the color stripe illumination pattern is reflected is met by Ishikawa where the direction is either on or off as shown in Fig 2.

In considering claim 22,

*The claimed wherein the individual ones of the sub-pixels are configured to reflect only one color...*is met by Ishikawa where light beam A reflects the colors in the sequence, green-blue-red, light beam B reflects the colors in the sequence red-green-blue and light beam C reflects the colors in the sequence blue-red-green, where each sub-pixel only reflects one color at a time.

In considering claims 23-24,

The claimed wherein the individual ones of the full-color screen pixels are configured to simultaneously reflect light of the color stripe illumination pattern having at least two different colors is met where a full pixel which includes 3 sub-pixels, will include the appropriate three colors from light beam a, b and c, where the beams reflect different colors.

In considering claims 25-26,

The claimed wherein the color strip illumination pattern comprises a plurality of different colors which are repetitively alternated in a common direction is met where light beams a, b and c, alternate colors green, red and blue, where the colors are illuminated in a common direction with respect to the area (Fig 2).

In considering claim 27,

*The claimed wherein the ordering of the different colors does not change...*is met by Ishikawa given the broadest interpretation of the claim where Ishikawa's ordering of light beam a/b/c where beam A's order is green-blue-red and beam B's order is red-green-blue and beam C's order is blue-red-green does not change.

In considering claims 28-29,

Ishikawa does not explicitly recite the parallel stripes collectively have a size substantially equal to the size of the color strip illumination pattern, nor the area defined by the full screen pixels being substantially equal to the illumination pattern.

Ishikawa does show the DMD generating a pattern via lens 32 (Fig 4) (which meets the upstream limitation).

Ishikawa discloses the use of a projection lens 32 to project the received image from DMD 1 onto a screen col 7, line 27-50). The question of obviousness is whether it would be obvious to have the stripes/all full color pixels of the DMD equal substantially in size to the display/illumination pattern. The examiner's position is it would be obvious if there was no requirement/no need to enlarge the image. If the DMD was able to adequately project/display an image without any enlargement, then the stripes of the DMD and the displayed illumination pattern would be substantially the same size.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify, Ishikawa, which discloses the use of a DMD, by optionally enlarging/or not the image generated by the DMD when the displayed image is suitable for viewing.

Applicant's Arguments

a) Regarding claim 18, the applicant states that the examiner didn't address "parallel strips corresponding to the size and configuration of a color stripe illumination pattern".

b) Regarding claim 20, the applicant states that Bernstein fails to disclose/suggest the column drives connected to one connection on each of the sub-pixels and the row driver connected to another connection. The applicant also states that Bernstein is unable to be combined with Ishikawa since Bernstein does not disclose PWM.

Examiner's Response

a) The examiner has addressed applicant's arguments with respect to claim 18 in the rejection above.

b) The examiner disagrees. Bernstein's Figure 11 clearly shows that column and row drivers are connected to the micromirror display system by each having one connection. It is also noted by the examiner, the applicant's own disclosure states that light valve 36 may be any type of micro-mirror construction which are well known. Thus the examiner requests the applicant to explain how a conventional micro-mirror/light valve could be used for the invention, and yet not meet the claimed limitation of a micro-mirror/light valve. In response to applicant's argument that Ishikawa cannot be combined with Bernstein, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The examiner also notes that PWM is notoriously well known in projection systems, as disclosed by Ishikawa which utilizes PWM with a DMD, thus although Bernstein does not recite the conventional method of operating a DMD, the use of a DMD with PWM is widely known.

Allowable Subject Matter

5. Claims 1-17 are allowed.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (703) 305-9871. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, John W. Miller, can be reached at (703)305-4795.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703)305-HELP.

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(FAX) 703-305-7786

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documents securely via the Internet. EFS is a system for submitting new utility patent applications and pre-grant publication submissions in electronic publication-ready form. EFS includes software to help customers prepare submissions in extensible Markup Language (XML) format and to assemble the various parts of the application as an electronic submission package. EFS also allows the submission of Computer Readable Format (CRF) sequence listings for pending biotechnology patent applications, which were filed in paper form.

BRIAN P. YENKE
Primary Examiner
Art Unit 2614

B.P.Y
22 May 2004